

REMARKS

New Claims 18-29 are added herein. Claims 12-29 are pending.

Specification

The application number appearing on page 1 of the specification was correctly provided in the preliminary amendment submitted when the instant application was filed. In the response to the previous Office Action, page 1 of the specification was amended. In that amendment, an error in the application number was inadvertently introduced. The amendment herein restores the correct application number.

103 Rejections

Claims 12 and 15

The instant Office Action states that Claims 12 and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hofmann et al. (“Hofmann;” U.S. Patent No. 6,707,098). The Applicants have reviewed the cited reference and respectfully submit that the present invention as recited in Claims 12 and 15 is not anticipated nor rendered obvious by Hofmann.

Independent Claim 12 recites “An electric device comprising: a first elongated nanowire on an insulating surface and a second elongated nanowire on said insulating surface at a right angle to said first elongated nanowire and separated therefrom by a gap of between 0.4 nm and 10 nm” (emphasis added).

Applicants respectfully disagree with the statement in the instant Office Action that “[t]he gap dimension in Hofmann et al. (10.9 nm) is close to the ranges claimed that one skilled in the art would have expected them to have the same properties.” Applicants respectfully note that the gap

dimension as recited in Claim 12 is for a gap between two nanowires on a surface (please see also new Claims 18 and 24), while the dimension cited in Hofmann is the distance between two nanotubes on different surfaces. In addition, Applicants respectfully note that there is no overlap between the range of dimensions cited in Hofmann and the claimed range of dimensions. Applicants also respectfully note that the difference between the minimum of the range cited in Hofmann and the maximum of the claimed range is almost ten percent; that is, at their closest points, the two ranges differ by almost ten percent. Therefore, Applicants respectfully submit that, because of the difference in magnitude in the gap dimensions, the difference in the arrangement of the nanowires (e.g., the nanotubes of Hofmann are separated by a number of intervening layers), and the difference in material that may lie in the gap, it is not possible for one skilled in the art to conclude that the size of the gap of the present claimed invention and the size of the gap of Hofmann would have the same properties.

Applicants also respectfully disagree with the statement in the instant Office Action that “[t]he Applicant has not established the criticality of gap dimensions stated since the Specification states that these dimensions are ‘typically 0.4-10 nm’.” First, Applicants respectfully note that, given the context of the statement in the specification, reference is being made to the present claimed invention. Second, Applicants respectfully note that the criticality of the claimed dimensions is addressed at least on page 5, lines 12-13, of the specification, which states “[d]ue to the small gap distance 34, when a voltage is applied to nanowire 32, the electric field will influence and control the current flow in nanowire 33” (emphasis added). Also, Applicants also note that “[r]educing the feature size of integrated circuit components is a continuing goal of semiconductor process designers. In the past, such reductions have led to decreased cost and

increased operating speed" (see page 1, lines 10-12, of the instant specification).

In summary, Applicants respectfully submit that the present claimed invention as recited in independent Claim 12 is not shown or suggested by Hofmann. Accordingly, Applicants respectfully submit that the basis for rejecting Claim 12 under 35 U.S.C. § 103(a) is traversed, and that Claim 12 is in condition for allowance. As such, Applicants respectfully submit that the basis for rejecting Claim 15 under 35 U.S.C. § 103(a) is also traversed, as Claim 15 is dependent on an allowable base claim and contains additional limitations.

Claim 13

The instant Office Action states that Claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hofmann and Shin et al. ("Shin," U.S. Patent No. 6,515,339). The Applicants have reviewed the cited references and respectfully submit that the present invention as recited in Claim 13 is not anticipated nor rendered obvious by Hofmann and Shin, alone or in combination.

Claim 13 is dependent on Claim 12 and recites additional limitations. Hence, by demonstrating that Hofmann and Shin (alone or in combination) do not show or suggest the limitations of Claim 12, it is also demonstrated that Hofmann and Shin (alone or in combination) do not show or suggest the limitations of Claim 13.

As presented above, Applicants respectfully submit that Hofmann does not show or suggest the limitations of Claim 12. Applicants also respectfully submit that Shin does not overcome the shortcomings of

Hofmann. Specifically, Applicants respectfully submit that Shin, alone or in combination with Hofmann, does not show or suggest that first and second nanowires on a surface are “separated ... by a gap of between 0.4 nm and 10 nm,” as recited in independent Claim 12. Therefore, Applicants respectfully submit that the present claimed invention as recited in independent Claim 12 is not shown or suggested by Hofmann and Shin, alone or in combination. Accordingly, Applicants respectfully submit that the basis for rejecting Claim 13 under 35 U.S.C. § 103(a) is traversed, as Claim 13 is dependent on an allowable base claim and contains additional limitations.

Claim 14

The instant Office Action states that Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hofmann and Jin (U.S. Patent No. 6,286,226). The Applicants have reviewed the cited references and respectfully submit that the present invention as recited in Claim 14 is not anticipated nor rendered obvious by Hofmann and Jin, alone or in combination.

Claim 14 is dependent on Claim 12 and recites additional limitations. Hence, by demonstrating that Hofmann and Jin (alone or in combination) do not show or suggest the limitations of Claim 12, it is also demonstrated that Hofmann and Jin (alone or in combination) do not show or suggest the limitations of Claim 14.

As presented above, Applicants respectfully submit that Hofmann does not show or suggest the limitations of Claim 12. Applicants also respectfully submit that Jin does not overcome the shortcomings of Hofmann. Specifically, Applicants respectfully submit that Jin, alone or in

combination with Hofmann, does not show or suggest that first and second nanowires on a surface are “separated ... by a gap of between 0.4 nm and 10 nm,” as recited in independent Claim 12. Therefore, Applicants respectfully submit that the present claimed invention as recited in independent Claim 12 is not shown or suggested by Hofmann and Jin, alone or in combination. Accordingly, Applicants respectfully submit that the basis for rejecting Claim 14 under 35 U.S.C. § 103(a) is traversed, as Claim 14 is dependent on an allowable base claim and contains additional limitations.

Claims 16 and 17

The instant Office Action states that Claims 16 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hofmann and Yano et al. (“Yano;” JP 04-097564). The Applicants have reviewed the cited references and respectfully submit that the present invention as recited in Claims 16 and 17 is not anticipated nor rendered obvious by Hofmann and Yano, alone or in combination.

Claims 16 and 17 are dependent on Claim 12 and recite additional limitations. Hence, by demonstrating that Hofmann and Yano (alone or in combination) do not show or suggest the limitations of Claim 12, it is also demonstrated that Hofmann and Yano (alone or in combination) do not show or suggest the limitations of Claims 16 and 17.

As presented above, Applicants respectfully submit that Hofmann does not show or suggest the limitations of Claim 12. Applicants also respectfully submit that Yano does not overcome the shortcomings of Hofmann. Specifically, Applicants respectfully submit that Yano, alone or in combination with Hofmann, does not show or suggest that first and second nanowires on a surface are “separated ... by a gap of between 0.4 nm

and 10 nm," as recited in independent Claim 12. Therefore, Applicants respectfully submit that the present claimed invention as recited in independent Claim 12 is not shown or suggested by Hofmann and Yano, alone or in combination. Accordingly, Applicants respectfully submit that the basis for rejecting Claims 16 and 17 under 35 U.S.C. § 103(a) is traversed, as Claims 16 and 17 are dependent on an allowable base claim and contain additional limitations.

Conclusions

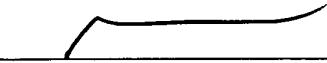
In light of the above remarks, Applicants respectfully request reconsideration of the rejected claims.

Based on the arguments presented above, Applicants respectfully assert that Claims 12-17, as well as new Claims 18-29, overcome the rejections of record and, therefore, Applicants respectfully solicit allowance of these claims.

The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,
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Date: 6/13/05


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